

CITY OF SEATTLE MAYOR'S OFFICE

SR 520 Light Rail Alternatives

DRAFT Report

EXECUTIVE SUMMARY

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Executive Summary

Mayor Mike McGinn commissioned this study by Nelson\Nygaard Consulting Associates to explore the possibilities for building light rail transit (LRT) on the State Route (SR) 520 corridor. The intent is to assist the mayor and staff in providing comment on the Supplemental Draft Environmental Impact Statement (SDEIS) for the SR 520 I-5 to Medina Bridge Replacement and HOV Project issued by the Washington State Department of Transportation (WSDOT) and the Federal Highway Administration.

The mayor's goal is to ensure that the SR 520 project is designed and built from the outset to reasonably accommodate light rail and reduce the impact of the new facility. To that end, the report focuses on several specific issues:

- Consider and analyze possible LRT alignments that connect major transit markets along the SR 520 corridor;
- Determine whether existing plans for the SR 520 bridge replacement preclude LRT or present significant obstacles to LRT conversion;
- Identify the steps necessary to build LRT in the SR 520 corridor; and
- Consider how SR 520 can be phased from the existing facility to a facility with a narrow footprint that will carry LRT, including shoreside connections.

Potential Light Rail Alignments

Sufficient transit markets exist on the east and west sides of the SR 520 bridge to warrant formal analysis of LRT in the corridor. The focus of the formal analysis would be to determine the market(s), alignment(s), and mode(s) for an intensive transit network, including the potential for a second light rail alignment crossing Lake Washington, in addition to I-90. Changes in the location of jobs and economic activity have markedly impacted the travel market on SR 520 over the past decade. The 2010 Census will provide valuable insight into these changes and will form a new basis to assess future transit markets. Transit ridership on the corridor in 2020 is forecasted to be about 25,000 person trips per day, up from approximately 15,000 per day in 2008.¹ The SDEIS projects that daily transit ridership on the corridor will reach more than 27,500 trips by 2030.

This report identifies five possible corridors that appear to have sufficient demand to warrant further investigation, acknowledging that identification of corridors and mode (i.e., bus, bus rapid transit, or light rail) must involve the jurisdictions and stakeholders from those communities to ensure that their policies are applied and the community needs are served.

In Seattle, the most promising LRT corridors all share the University of Washington as an important anchor for an SR 520 alignment. The Westside corridors recommended for further evaluation either connect Ballard to the University or connect the Aurora Avenue corridor (from north of the Ship Canal to about Haller Lake) to the University.

¹. SR 520 High Capacity Transit Plan WSDOT, Sound Transit, King County Metro, University of Washington, 2008

Design and Construction Considerations

Both final design and construction should be done with a full understanding of future transit alignments, capacity, and mode split in the SR 520 corridor. The corridor between Foster Island and I-5 is sufficiently sensitive, environmentally and politically, that there will be but one opportunity to “get it right” in terms of construction for the next 75 to 100 years.

Option A+, the preferred alternative of the legislative work group, presents significant obstacles to converting the corridor to include light rail. While technically feasible, the costs involved with a subsequent retrofit (based on the design assumptions stated in the SDEIS) render the likelihood of conversion financially impractical, environmentally challenging, and/or require widening of the facility to an equivalent of eight lanes, which, from a policy perspective, is unacceptable to the City of Seattle. The primary changes needed to the current design in order to meet the mayor's goal of an SR 520 bridge that is readily convertible to light rail include the following:

- There must be sufficient space (i.e., a “gap”) between the eastbound and westbound lanes of the SR 520 mainline between Foster Island and Montlake Boulevard to allow an LRT alignment and/or transit/high occupancy vehicle (HOV) lanes to diverge from SR 520.
- Adequate width on the west approach and bridge deck must be maintained to ensure that light rail can be added without significant structural modification. This could require added width of up to 10 feet for the bridge and west approach from the western high rise to Foster Island and transition width for the divergence of the LRT alignment from the mainline between Foster Island and Montlake Boulevard.
- The pontoons must include sufficient flotation and stability to meet the loading imparted by LRT and avoid future in-water construction necessitated by adding pontoons at a later date.

Phasing

This report identifies a scenario to phase safety-sensitive portions of the SR 520 Bridge Replacement and HOV Project while preserving the ability to convert the floating bridge and approaches to carry light rail in the future.

Six-Lane Bridge — 4 GP + 2 HOV Lanes SR 520 Convertible to LRT Operation

Main Features:

- Initial six-lane replacement for floating bridge, with four general purpose (GP) lanes and two HOV lanes
- Six-lane western approach constructed to Montlake that is LRT convertible
- Four-lane Portage Bay Viaduct rebuilt to improved version of current structure
- SR 520 (Medina to Montlake) phased to intensive HCT following regional planning effort

The current budget for constructing the replacement project has a funding shortfall of about \$2.6 billion of the \$4.65 billion needed. Given this shortfall and the urgency of addressing the public safety issues associated with the floating bridge, it is highly likely that the project will be constructed in phases. The phasing scenario presented in this document would require modification to the current environmental analysis for the SR 520 corridor.

Connections on East and West Shorelines and Departure from the Mainline

The report finds that light rail connections to the east and west shorelines are feasible, but careful planning will be necessary to ensure the preservation of future design options.

On the east side of the floating bridge, an LRT alignment would remain within the SR 520 corridor as it reaches and passes through the Evergreen Point Road area. At Evergreen Point, it would not be possible for LRT and bus rapid transit (BRT) service to share center lane operations and use of the Evergreen Point transit station without substantial reconstruction of the station. The LRT alignment would diverge from the SR 520 corridor somewhere between Evergreen Point Road and I-405, depending on the final alignment selected.

On the Westside, an LRT alignment could diverge from the SR 520 mainline between Foster Island and Montlake Boulevard, depending on the alternative selected for reaching Husky Stadium. This report identifies four options for a crossing of the Montlake Cut to reach the University of Washington:

- High level bridge (with either 70 or 110 feet of clearance),
- Tunnel,
- Low level bridge, or
- Surface approach on Montlake Boulevard with a new bascule bridge parallel to the existing historic Montlake Bridge.

These four alternatives imply an opportunity for a serious policy discussion about the needed, and desired, width of SR 520 between Foster Island and I-5.

Necessary Steps to Build Light Rail on SR 520

The steps necessary to bring light rail to the SR 520 corridor involve planning, environmental analysis, policy decisions, and funding. Regional transportation planning documents do not identify light rail on SR 520; however, to successfully build light rail in this corridor, these documents must be modified to reflect LRT and the intended alignment. Putting the necessary steps in perspective, consider that 20 years ago Central Link, now operating in Seattle, was in a similar situation—it was not included in regional transportation plans, environmental work had not been completed, and funding was uncertain, at best. Before the first passenger boarded Central Link, regional voters agreed to expand the system north to Lynnwood, south to Federal Way, and east to Bellevue and Overlake. This parallel is applicable to SR 520: if the region moves forward to formally consider plans for light rail on SR 520 today, light rail could be a reality in the corridor. On the other hand, if current plans for SR 520 remain unaltered, there are significant, perhaps insurmountable obstacles, to building light rail in the corridor, even if formal planning efforts identify light rail as the preferred option.